

## **FCC Part 15.247 Certification** **Test Report**

**FCC ID: R32-RFCU**

**FCC Rule Part: 15.247**

**ACS Report Number: 04-0170-15C**

Manufacturer: Onity, Inc.  
Equipment Type: Modular Radio  
Model: RFCU

## **Host/Antenna Description**



## **Description of Host Devices for RFM100 modular radio**

The RFM100 modular radio utilizes a unique type of antenna connection where the antenna is a trace permanently etched on the PCB of these host devices that are key components to the Onity's Wireless Energy Management System: Wireless DDC Thermostat(WDDC), Raptor Door Switch Transmitter(RFDSW) and Raptor PIR Motion Sensor(RFPIR).

### **1) Wireless DDC Thermostat**

Onity's Model Name: WDDC

The WDDC Wall unit monitors the room temperature, motion, and the guest settings. When any of these change, the information is transmitted to the Room Control Unit(RCU) which controls many types of HVAC system.

In order to increase battery life, the unit only wakes up once a minute to check the status, or when a button is pressed. When the unit wakes up and checks the status, it only transmits this information if there has been a change since the last check. Again, anytime the buttons are pressed on the unit, it will wake up. At this point it will transmit any changes five seconds after the final button press. This will allow the guest time to finish making the setting changes.

Changes in temperature are only transmitted if the change is 1 full degree or greater.

Motion status is only transmitted if there it is different from the last check. If no changes in temperature, settings, motion status, etc. occur for a 30 minute period of time, the WDDC will transmit a status message to the RCU. If the RCU does not receive a message from the WDDC in a 35 minute time period, it determines that there is a problem with the WDDC and will shut the HVAC system off.

The following information is transmitted as part of the message:

- Room Temperature
- Humidity (if applicable)
- Set Temperature
- Fan Setting
- Motion Status
- Unit ON or OFF



- Battery Status

## **2) Raptor Door Switch Transmitter**

Onity's Model Name: RFDSW

The door switch transmitter transmits the door status each time a change occurs. When the door opens or closes, the unit will wake up and transmit the change, typically with about a 1 second delay.

## **3) Raptor PIR Motion Sensor**

Onity's Model Name: RFPIR

The wireless remote motion sensor wakes up once every minute to check the motion status of a room. If there has been a change of motion status, this change is transmitted. If no change has occurred, no transmission is made.

## **4) Room Control Unit\*\***

Onity's Model Name: RFRCU

The Room Control Unit (RCU) is the 'brain' of the Onity's wireless energy management system. It receives the temperature, humidity, guest settings, fan mode, motion status, and door status from the various system devices and determines how to operate the HVAC system and lighting control.

The RCU has six relay drivers for outputs, a local door switch input, three setup buttons, three LED indicators, a local temperature sensor input, and a Real Time Clock (RTC) interface. The RCU receives transmissions from all the wireless devices via its on board radio.

\*\* The RCU have a different type of antenna connection and additional external RF circuits than above products, therefore, a separate radio certification application will be filed for it.